Amendments to the Claims

The following listing of the claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (previously presented): A device for detecting a selected analyte using bioluminescence, comprising:

a stably transformed bacterium containing a construct integrated into the bacterial cell genome, said construct comprising a promoterless *lux* gene cassette and a *mer* regulatory element responsive to an analyte comprising mercury;

a support matrix comprising a filter strip onto which the bacterium is attached; and

an encapsulating material to contain said bacterium attached to said filter strip, wherein the encapsulated bacterium emits visibly detectable light in the presence of said analyte comprising mercury.

Claim 2 (previously presented): The device of claim 1, wherein the construct comprises *mer Ro/p-lux.*

Claim 3 (previously presented): The device of claim 1, wherein the construct comprises *merRo/pA-lux.*

Claim 4 (canceled)

Claim 5 (previously presented): The device of claim 1, wherein the analyte comprises mercury II ion.

Claims 6-7 (canceled)

Claim 8 (previously presented): The device of claim 1, wherein the bacterium is selected from the group consisting of *Pseudomonas fluorescens*, *P. putida* 2440, *P. putida* F1, *Escherichia coli*, *Vibrio fischerii*, *Vibrio harveyi*, and *Bacillus subtilis.*

Claim 9 (previously presented): The device of claim 8, wherein the *P. fluorescens* is *P. fluorescens* 5R.

Claim 10 (previously presented): An apparatus comprising the device of claim 1.

Claim 11 (previously presented): The apparatus of claim 10, further comprising a holder for the support matrix onto which the bacterium is immobilized.

Claim 12 (previously presented) The apparatus of claim 11 adapted to hand-carrying.

Claims 13-15 (canceled)

Claim 16 (previously presented): A genetically modified bacterium responsive to mercury, said bacterium encapsulated in an encapsulating material and containing a construct integrated into the bacterial cell genome, said construct comprising a promoterless *lux* gene cassette and a *mer* regulatory element, wherein said bacterium produces a bioluminescent protein

in the presence of mercury, said bacterium further comprising a support matrix comprising a filter strip onto which said bacterium is attached.

Claim 17 (canceled)

Claim 18 (previously presented): The bacterium of claim 16, wherein the filter strip comprises cellulose.

Claim 19 (previously presented): A portable kit for detecting mercury comprising the device of claim 2 or 3 and instructions for use in detecting mercury.

Claims 20-22 (canceled)

Claim 23 (previously presented): The kit of claim 19, wherein said genetically modified bacterium is selected from the group consisting of *P. putida* 2440, *P. fluorescens* 5R, *P. putida* F1, *Escherichia coli*, *Vibrio fischerii*, *Vibrio harveyi*, and *Bacillus subtilis*.

Claim 24 (canceled)

Claim 25 (previously presented): A method for direct visual detection of mercury in water samples comprising:

providing at least one stably transformed bioreporter bacterium genetically modified to contain a construct integrated into the bacterial cell genome, wherein said construct comprises a promoterless *lux* gene cassette and a *mer* regulatory element, said stably transformed bioreporter

bacterium being attached to a support matrix comprising a filter strip and disposed within protective packaging for preserving hydration of said bacterium;

removing said protective packaging;

contacting a water-comprising sample suspected of containing mercury with said bioreporter bacterium; and

detecting the presence of the mercury when a visibly detectable luminescence is produced.

Claim 26 (canceled)

Claim 27 (previously presented): The method of claim 25, wherein said visibly detectable luminescence is detected with a naked eye, night vision equipment or within a light-tight slide holder.

Claim 28 (canceled)

Claim 29 (currently amended): A device enclosed in a water-tight packaging, the device comprising:

(a) encapsulated ~~bacteria~~ cells capable of producing a detectable signal in response to an analyte; and

(b) a filter strip in fluid communication with the encapsulated cells ~~bacteria~~.

Claim 30 (currently amended): The device of claim 29, wherein the filter strip is impregnated with a dry nutrient source capable of supporting metabolism in the encapsulated cells ~~bacteria~~.

Claim 31 (previously presented): The device of claim 29, wherein the filter strip is dry.

Claim 32 (previously presented): The device of claim 29, wherein the detectable signal is light.

Claim 33 (previously presented): The device of claim 30, wherein the filter strip is dry and the detectable signal is light.

Claim 34 (currently amended): A device enclosed in a water-tight packaging, the device comprising:

(a) encapsulated ~~bacteria~~ cells capable of producing a detectable signal in response to an analyte;

(b) a filter strip; and

(c) a water impermeable barrier in a position that separates the encapsulated ~~bacteria~~ cells from the filter strip, the water impermeable barrier being removable from the position that separates the encapsulated ~~bacteria~~ cells from the filter strip, wherein removal of the water impermeable barrier from the position that separates the encapsulated ~~bacteria~~ cells from the filter strip places the filter strip in fluid communication with the encapsulated ~~bacteria~~ cells.

Claim 35 (currently amended): The device of claim 34, wherein the filter strip is impregnated with a dry nutrient source capable of supporting metabolism in the encapsulated ~~bacteria~~ cells.

Claim 36 (previously presented): The device of claim 34, wherein the filter strip is dry.

Claim 37 (previously presented): The device of claim 34, wherein the detectable signal is light.

Claim 38 (previously presented): The device of claim 35, wherein the filter strip is dry and the detectable signal is light.

Claim 39 (currently amended): A method of detecting the presence of an analyte in a liquid sample, the method comprising the steps of:

(a) providing a device enclosed in a water-tight packaging, the device comprising encapsulated ~~bacteria~~ cells capable of producing a detectable signal in response to the analyte and a filter strip in fluid communication with the encapsulated ~~bacteria~~ cells;

(b) removing the device from the water-tight packaging; and

(c) contacting the filter strip with the liquid sample whereby the liquid sample flows through the filter strip to the ~~bacteria~~ cells; and

(d) placing the device under suitable conditions that would allow the ~~bacteria~~ cells to produce the detectable signal if the analyte were present in the liquid sample,

wherein presence of the analyte in the liquid sample causes the ~~bacteria~~ cells to produce the detectable signal.

Claim 40 (previously presented): The method of claim 39, wherein the liquid sample is a water sample.

Claim 41 (previously presented): The method of claim 39, wherein the detectable signal is light.

Claim 42 (currently amended): The method of claim 39, wherein the filter strip is impregnated with a dry nutrient source capable of supporting metabolism in the encapsulated ~~bacteria~~ cells, and the step of contacting the filter strip with the liquid sample dissolves at least a portion of the nutrient source causing the dissolved nutrient source to flow to the ~~bacteria~~ cells.

Claim 43 (previously presented): The method of claim 42, wherein the detectable signal is light.

Claim 44 (currently amended): A method of detecting the presence of an analyte in a liquid sample, the method comprising the steps of:

(a) providing a device enclosed in a water-tight packaging, the device comprising encapsulated ~~bacteria~~ cells capable of producing a detectable signal in response to an analyte, a filter strip, and a water impermeable barrier in a position that separates the encapsulated ~~bacteria~~ cells from the filter strip, the water impermeable barrier being removable from the position that

separates the encapsulated ~~bacteria~~ cells from the filter strip, wherein removal of the water impermeable barrier from the position that separates the encapsulated ~~bacteria~~ cells from the filter strip places the filter strip in fluid communication with the encapsulated ~~bacteria~~ cells;

(b) removing the device from the water-tight packaging;

(c) removing the water impermeable barrier from the position that separates the encapsulated ~~bacteria~~ cells from the filter strip;

(d) contacting the filter strip with the liquid sample whereby the liquid sample flows through the filter strip to the ~~bacteria~~ cells; and

(e) placing the device under suitable conditions that would allow the ~~bacteria~~ cells to produce the detectable signal if the analyte were present in the liquid sample,

wherein presence of the analyte in the liquid sample causes the ~~bacteria~~ cells to produce the detectable signal.

Claim 45 (previously presented): The method of claim 44, wherein the liquid sample is a water sample.

Claim 46 (previously presented): The method of claim 44, wherein the detectable signal is light.

Claim 47 (currently amended): The method of claim 44, wherein the filter strip is impregnated with a dry nutrient source capable of supporting metabolism in the encapsulated ~~bacteria~~ cells, and the step of contacting the filter strip with the liquid sample dissolves at least a portion of the nutrient source causing the dissolved nutrient source to flow to the ~~bacteria~~ cells.

Claim 48 (previously presented): The method of claim 47, wherein the detectable signal is light.